

**Abstract****Marine seismic surveying**

The invention provides a method of processing seismic data acquired using a seismic source array that emits, in use, a seismic wavefield having a frequency spectrum that does not contain a source ghost at a non-zero frequency within the seismic bandwidth. This eliminates source-side ghost reflections. The method further comprises processing the acquired seismic data thereby to attenuate the effect of ghost reflections in the seismic data, and this eliminates receiver-side ghost reflections.

In one embodiment, the seismic source array comprises a first source (13) located at one depth in a water column (2) and a second source (14) located at a different depth in the water column. The depths of the two sources are chosen so that their ghost notches do not overlap within the seismic bandwidth.